

Supplementary Figures

Figure S1

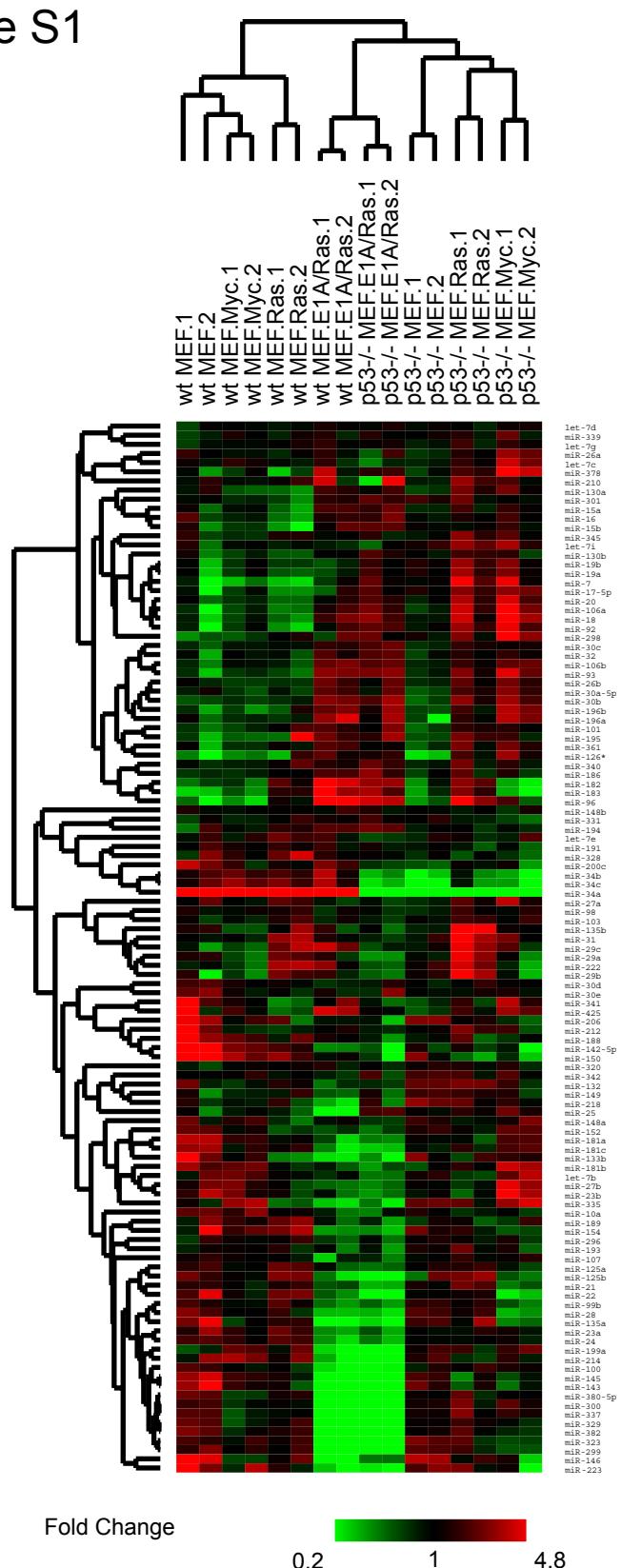


Figure S1. miRNA profiles of engineered MEFs. The full heatmap for the unsupervised clustering of MEF lines, with the indicated genotypes, corresponding to Fig 1A, is shown. Values are shown on a linear scale.

Figure S2

hsa-mir-34a	- UGGCAGUGUC -	UUAGCUGC	UUGUUGU	GAGCAAUAGU - A
mmu-mir-34a	- UGGCAGUGUC -	UUAGCUGC	UUGUUGU	GAGCAAUAGCUA
gga-mir-34a	- UGGCAGUGUC -	UUAGCUGC	UUGUUGU	GAGCAAUAGUA
dre-mir-34	- UGGCAGUGUC -	UUAGCUGC	UUGUUGU	GUGGAGUGAG - A
hsa-mir-34b	UAGGCAGUGUC	AAUAGCUGA	UUGUACUGUG	- GUGGUUA
mmu-mir-34b	UAGGCAGUGUA	AAUAGCUGA	UUGUAGUGCG	- GUGCUGA
gga-mir-34b	- AGGCAGUGUA	AGUUAGCUGA	UUGUACCCAGCGCCCCA	-
dre-mir-34b	UAGGCAGUGU	GUUAGCUGA	UUGUUCAU AUGAACUA	-
hsa-mir-34c	- AGGCAGUGU	GUUAGCUGA	UUGCU	- AAUAGUAC -
mmu-mir-34c	- AGGCAGUGU	GUUAGCUGA	UUGCU	- AAUAGUAC -
gga-mir-34c	- AGGCAGUGU	GUUAGCUGA	UUGCC	- ACCAGGAC -
dre-mir-34c	- AGGCAGUGC	AGUUAGU	UUGAUUACA	- AUCCAUAAAG -
dme-mir-34	- UGGCAGUGU	GGUUAGCUGG	UUGUGUAGGCCAAU	- UAUUG
dps-mir-34	- UGGCAGUGU	GGUUAGCUGG	UUGUGUAGGCCAAAUAUUG	-
cbr-mir-34	- AGGCAGUGU	GGUUAGCUGG	UUGCAUACACAGG	-
cel-mir-34	- AGGCAGUGU	GGUUAGCUGG	UUGCAUAAUUC	-
hsa-mir-34a	A - - - - -	GGAAGCAAUCAGCAAGUA	UACUGCCUA	-
mmu-mir-34a	A - - - - -	GGAAGCAAUCAGCAAGUA	UACUGCCUA	-
gga-mir-34a	A - - - - -	GGAAGCAAUCAGCAAGUA	UACUGCCUA	-
dre-mir-34	A - - - - -	CGAAGCAAUCAGCAAGUA	UACUGCCGCA	-
hsa-mir-34b	- - - - -	CAAUCACUAACUCCACUGCCAUC	-	
mmu-mir-34b	- - - - -	CAAUCACUAACUCCACUGCCAUC	-	
gga-mir-34b	- - - - -	CAAUCACUAACUACUGCCAUC	-	
dre-mir-34b	- - - - -	UAAUCACUAACCAUACUGCCAACA	-	
hsa-mir-34c	- - - - -	CAAUCACUAACCACACGGCAGG	-	
mmu-mir-34c	- - - - -	CAAUCACUAACCACACAGCAGG	-	
gga-mir-34c	- - - - -	CAAUCACUAACCACACAGCAGG	-	
dre-mir-34c	- - - - -	UAAUCACUAACCUCACUACCGAGG	-	
dme-mir-34	CCGUUGACAAUUCACAGG	CACUAUCUUCACUGCCGCC	-	
dps-mir-34	CCUUUGACCAUUCACAGG	CACUAUCUUCACUGCCGCC	-	
cbr-mir-34	- - - - -	UUGACAAACGGCUACCUUCACUGCCACC	-	
cel-mir-34	- - - - -	UUGACAAACGGCUACCUUCACUGCCACC	-	

Figure S2. Conservation of miR-34. miR-34 represents a family of evolutionarily conserved miRNAs, with single conserved homologues in invertebrates, such as flies and worms.

Figure S3

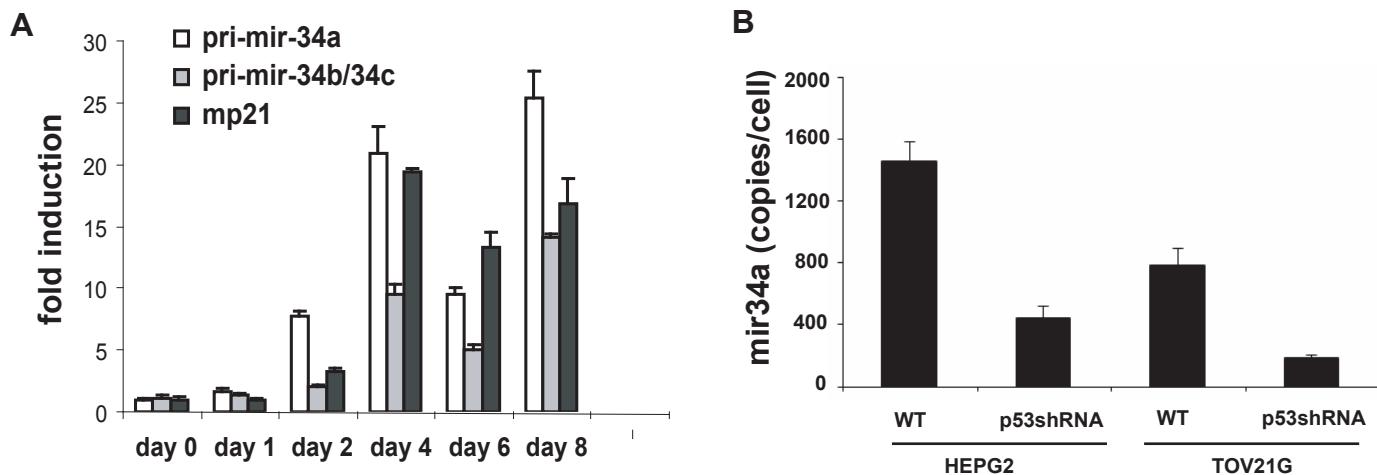


Figure S3. Correlation of miR-34s expression with p53 status. A. Quantification of primary miR-34a and miR-34b/c transcript in MEFs following p53 reactivation. In these cells, p53 is suppressed by a conditional p53 shRNA, whose expression was repressed at day 0 by addition of doxycycline. All ΔCt values are normalized to ΔCt for day 0. B. TOV21G and HEPG2 cells were engineered to contain a constitutively expressed p53 shRNA or a control vector. Shown is the level of mir34a in each of the lines (see Methods). Measurements of mir34b and c in these lines indicated that these family members are not expressed in either the control or shRNA line. In A and B, error bars represent the standard error from the mean in separate measurements.

Figure S4

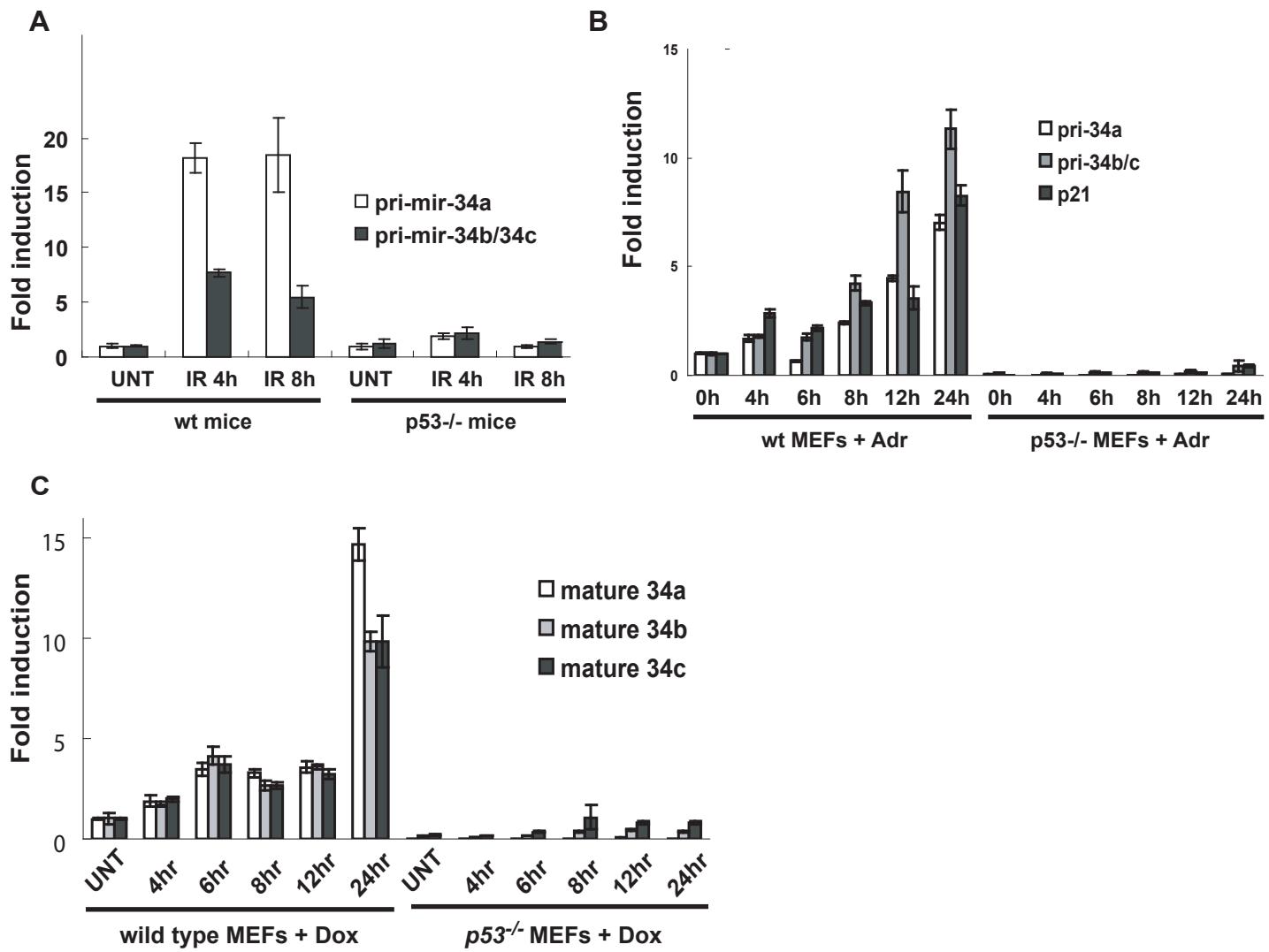


Figure S5

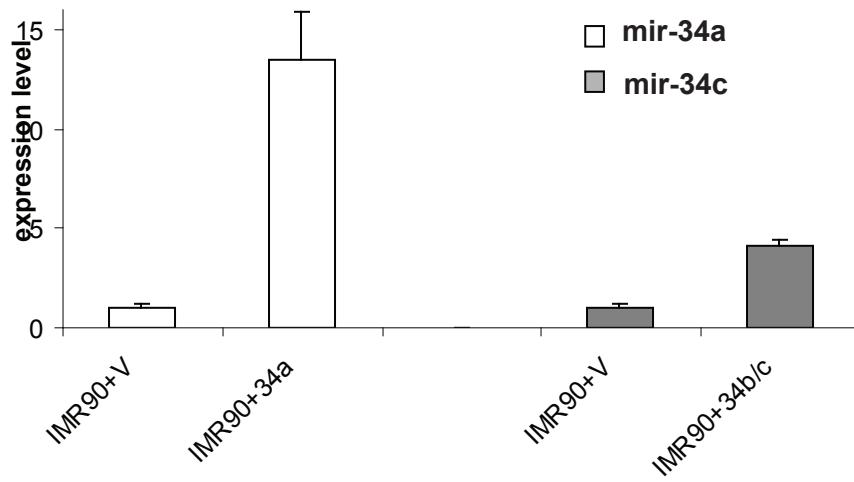


Figure S5. Expression levels of miR-34s. Levels of mature miR-34a or miR-34c were measured by Q-PCR in IMR90 cells infected with a control vector or with vectors directing the expression of primary transcripts for mir-34a or mir-34b/c, as indicated.

Figure S6

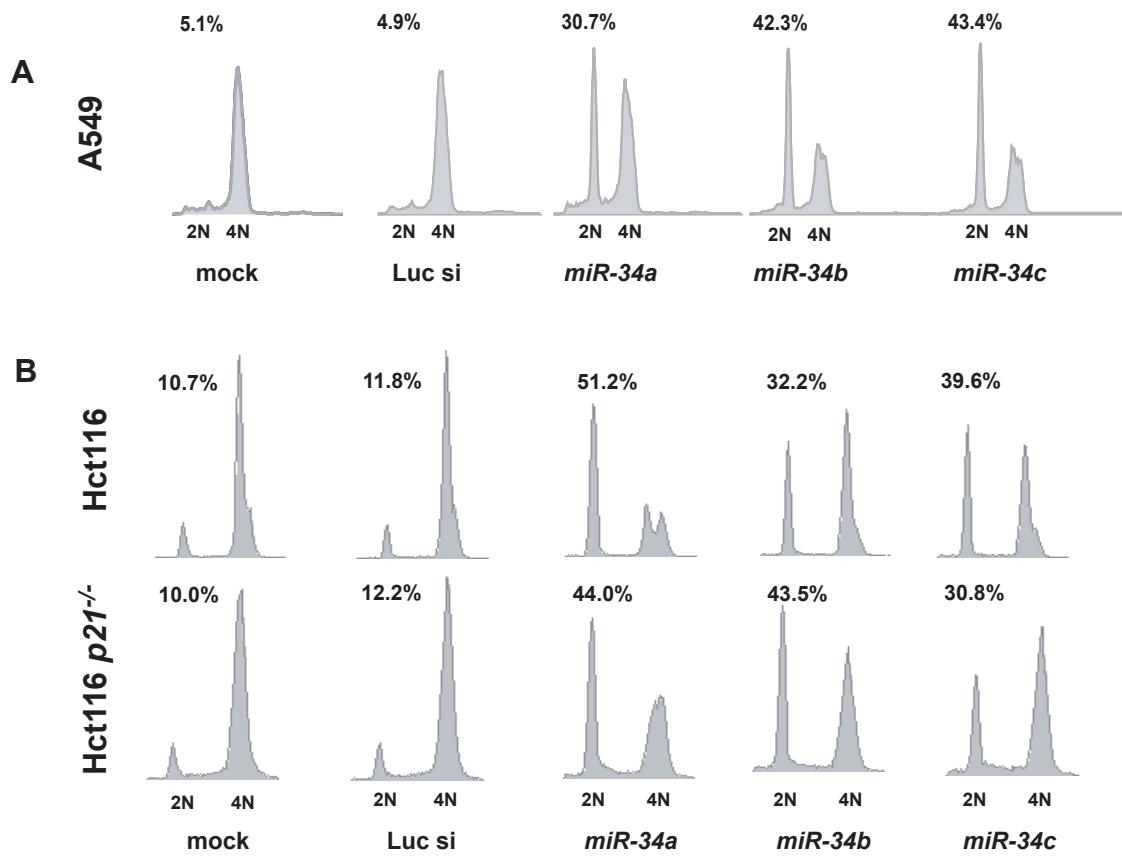


Figure S6. miR-34 induces cell cycle arrest in cancer cells. A. A549 cells were transfected with miR-34s as siRNAs and cell cycle arrest was measured using a G2 trapping assay. Briefly, cells were treated with Nocodazole 24 hours post transfection and monitored for cell cycle distribution 16-20 hours after Nocodazole treatment. Proliferating cells accumulate in G2 phase, and only cells arrested in G1 or S prior to Nocodazole treatment retain those states. B. Hct116 and Hct116 p21^{-/-} cells were transfected with miR-34s as siRNAs, and cell cycle arrest was monitored as described in A.

Figure S7

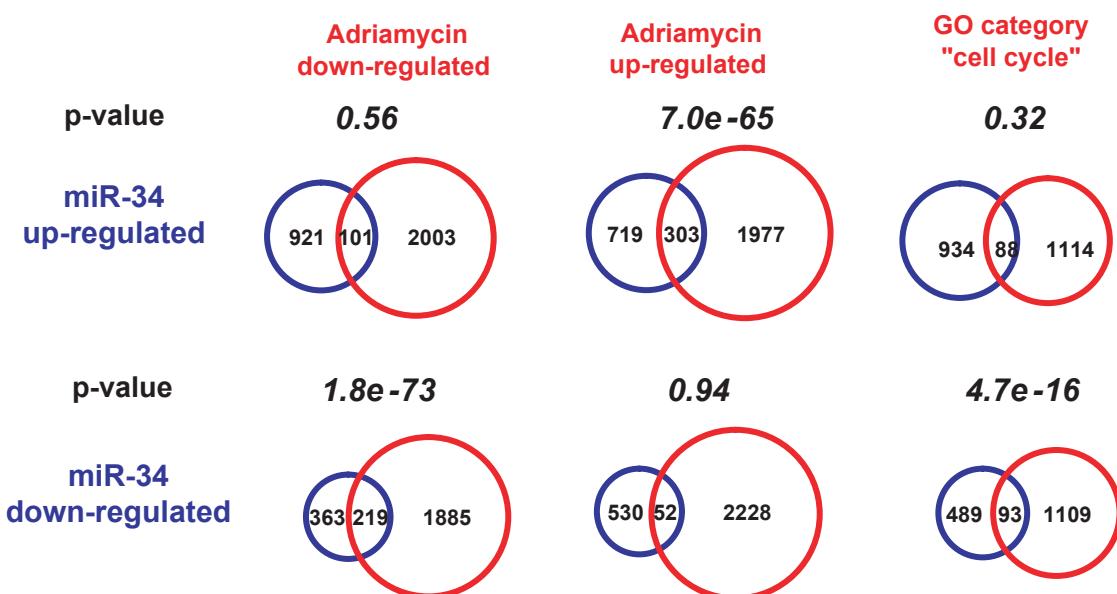


Figure S7. Functional annotation of candidate miR-34 targets. Venn diagrams summarize functional analysis of miR-34a, b and c consensus signatures across multiple cell types (see Table S2). This analysis reveals the following significant gene set overlaps: miR-34 down-regulated genes with genes down-regulated by adriamycin-induced DNA damage in A549 cells (bottom left); miR-34 up-regulated genes with genes up-regulated by adriamycin-induced DNA damage in A549 cells (top middle); miR-34 down-regulated genes with genes in the GO Biological Process category "cell cycle" (bottom right). The p-values for each overlapping set are indicated.

Figure S8

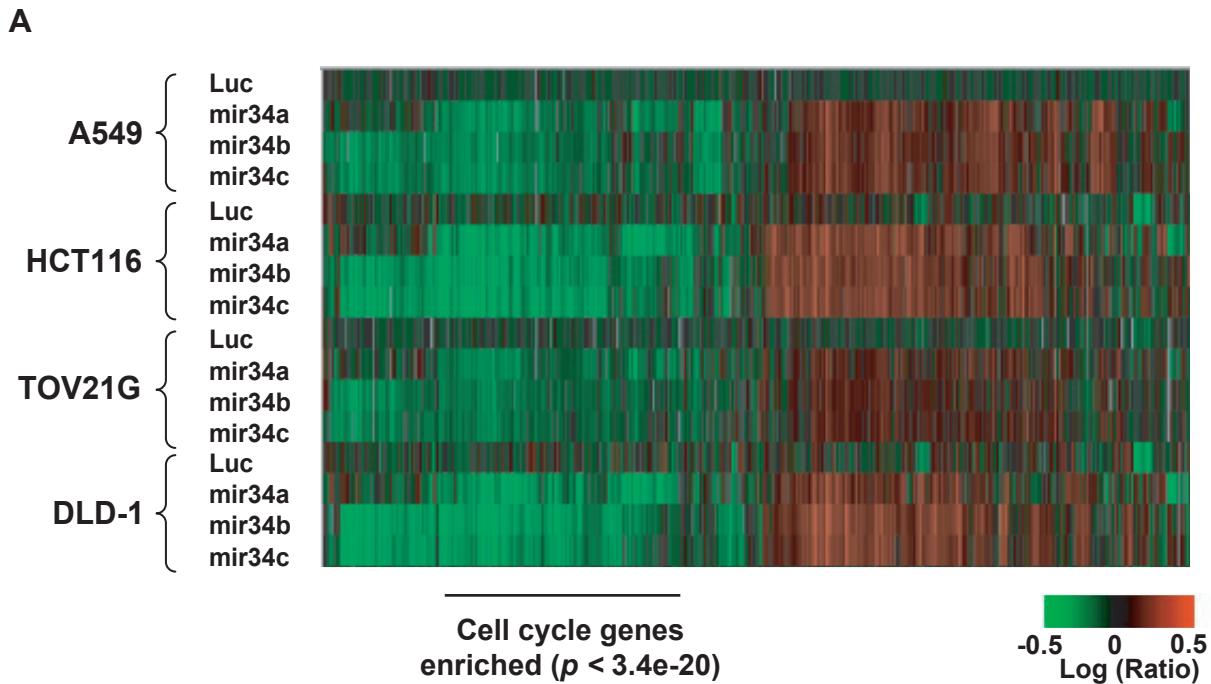


Figure S8. Genes regulated by miR-34. A. RNA duplexes corresponding to each mir34 family member or a control siRNA target luciferase (Luc) were transfected into A549, HCT116 Dicerex5, TOV21G, DLD-1 Dicerex5 cells. Total RNA was isolated 24 hrs post transfection, and subjected to microarray expression analysis. Consensus expression signatures that were down-regulated by all mir-34 family miRNAs were indicated below the heat map. These consensus signatures were tested for enrichment of cell cycle regulation genes annotated with GO Biological Process terms and 3'UTR hexamer seed matches (see methods). B. Seed hexamer matches from each of the candidates examined in Figure 4 are shown.

Supplementary Tables and Figure Legends

Supplementary Table 1

Table S1. Induction of miRNAs and miRNAs* by Adriamycin in TOV21G cells

microRNA	copies per cell ^a		induction (fold)
	untreated	Adriamycin	
miR-34c	9	420	46.7
miR-34b	1	27	27.0
miR-143	14	255	18.2
miR-302a	1	15	15.0
miR-194	148	2153	14.5
miR-145	11	143	13.0
miR-34a	673	8619	12.8
miR-215	117	1463	12.5
miR-203	2	24	12.0
miR-192	1315	14670	11.2
miR-101	17	163	9.6
miR-29b	6066	52782	8.7
miR-149	17	147	8.6
miR-96	264	2198	8.3
miR-152	41	340	8.3
miR-182*	1	8	8.0
miR-135a	1	8	8.0
miR-132	11	85	7.7
miR-130a	567	4148	7.3
miR-30a-5p	3680	26565	7.2
miR-29a	2981	21456	7.2
miR-30e-3p	1624	11619	7.2
miR-146	422	2972	7.0
miR-205	1	7	7.0
miR-182	369	2566	7.0
miR-1	5	34	6.8
miR-21	3989	27023	6.8
miR-138	58	390	6.7
miR-23a	9341	61504	6.6
miR-183	965	6184	6.4
miR-30d	1732	10903	6.3
miR-141	93	573	6.2
miR-107	823	5022	6.1
miR-133b	1	6	6.0
miR-27a	24863	142759	5.7
miR-133a	3	17	5.7
miR-103	854	4831	5.7
miR-30e-5p	435	2436	5.6
miR-23b	16956	89406	5.3
miR-10b	285	1490	5.2

miR-30c	5251	25088	4.8
miR-27b	8626	40525	4.7
miR-31	1305	6026	4.6
miR-32	715	3292	4.6
miR-181a	370	1680	4.5
miR-26a	657	2948	4.5
miR-30b	2878	12684	4.4
miR-153	138	598	4.3
miR-126	150	647	4.3
miR-26b	983	4225	4.3
miR-148a	18	76	4.2
miR-28	504	2123	4.2
miR-148b	1148	4796	4.2
miR-181c	13	54	4.2
miR-98	3892	15978	4.1
miR-155	46	186	4.0
miR-125a	1125	4532	4.0
miR-125b	2285	9197	4.0
miR-147	4	16	4.0
miR-99a	1493	5952	4.0
miR-106b	508	2014	4.0
miR-135b	32	125	3.9
miR-100	1210	4589	3.8
miR-15a	605	2280	3.8
miR-33	14	52	3.7
miR-151	129	466	3.6
miR-204	5	18	3.6
miR-150	5	18	3.6
miR-140	77	276	3.6
miR-10a	798	2795	3.5
miR-128b	104	363	3.5
miR-193	66	221	3.3
miR-19b	489	1628	3.3
miR-130b	549	1819	3.3
miR-19a	1975	6016	3.0
miR-134	1	3	3.0
miR-15b	661	1947	2.9
miR-16	52210	151512	2.9
miR-9*	895	2591	2.9
miR-99b	321	924	2.9
miR-20	468	1346	2.9
miR-222	1674	4781	2.9
miR-17-3p	82	231	2.8
miR-128a	177	481	2.7
miR-25	176	461	2.6
miR-221	255	667	2.6
miR-106a	594	1530	2.6
miR-190	75	191	2.5
miR-92	1776	4450	2.5
miR-198	2	5	2.5

miR-17-5p	401	979	2.4
miR-370	30	73	2.4
miR-127	17	41	2.4
miR-331	204	487	2.4
miR-340	37	88	2.4
miR-218	28	65	2.3
miR-93	317	735	2.3
miR-189	4	9	2.3
miR-328	47	102	2.2
miR-302b	43	92	2.1
miR-330	16	33	2.1
miR-302d	18	37	2.1
miR-202	19	39	2.1
miR-382	2	4	2.0
miR-381	4	8	2.0
miR-380-3p	2	4	2.0
miR-302c*	13	26	2.0
miR-212	1	2	2.0
miR-199b	1	2	2.0
miR-199a*	6	12	2.0
miR-326	35	67	1.9
miR-410	338	625	1.8
miR-380-5p	6	11	1.8
miR-199a	5	9	1.8
miR-423	126	224	1.8
miR-216	13	23	1.8
miR-324-3p	75	132	1.8
miR-450	7	12	1.7
miR-302a*	3	5	1.7
miR-195	1474	2448	1.7
miR-339	88	146	1.7
miR-200a	4792	7907	1.7
miR-186	195	320	1.6
miR-301	360	585	1.6
miR-374	1922	3113	1.6
miR-214	21	34	1.6
miR-324-5p	73	117	1.6
miR-378	5	8	1.6
miR-373*	10	16	1.6
miR-196a	105	160	1.5
miR-425	19	28	1.5
miR-320	604	874	1.4
miR-196b	345	495	1.4
miR-200b	570	773	1.4
miR-323	3	4	1.3
miR-429	405	529	1.3
miR-346	11	14	1.3
miR-220	19	24	1.3
miR-188	46	56	1.2
miR-363	168	184	1.1

miR-372	1	1	1.0
miR-325	2	2	1.0
miR-299	1	1	1.0
miR-223	1	1	1.0
miR-211	2	2	1.0
miR-154*	1	1	1.0
miR-197	216	210	1.0
miR-422b	26	25	1.0
miR-210	72	68	0.9
miR-451	25	23	0.9
miR-7	2804	2520	0.9
miR-345	46	41	0.9
miR-191	1768	1471	0.8
miR-208	135	95	0.7
miR-424	28	19	0.7
miR-224	9	6	0.7
miR-379	7	4	0.6
miR-217	2107	919	0.4
miR-95	0	8	N/A
miR-449	0	0	N/A
miR-448	0	0	N/A
miR-431	0	0	N/A
miR-422a	0	0	N/A
miR-412	0	0	N/A
miR-383	0	0	N/A
miR-376b	0	0	N/A
miR-375	0	0	N/A
miR-373	0	0	N/A
miR-371	0	0	N/A
miR-368	0	0	N/A
miR-367	0	1	N/A
miR-342	0	0	N/A
miR-338	0	0	N/A
miR-337	0	0	N/A
miR-302c	0	0	N/A
miR-302b*	0	1	N/A
miR-296	0	0	N/A
miR-213	0	0	N/A
miR-206	0	0	N/A
miR-187	0	5	N/A
miR-184	0	1	N/A
miR-154	0	9	N/A
miR-144	0	31	N/A
miR-142-3p	0	0	N/A
miR-139	0	0	N/A
miR-137	0	2	N/A
miR-136	0	0	N/A
miR-129	0	8	N/A
miR-126*	0	36	N/A
miR-124a	0	2	N/A

miR-122a	0	1	N/A
miR-105	0	0	N/A

^a Copies per cell of 194 miRNAs and miRNAs are determined using real time PCR analysis¹. ΔCt values were converted to copy number by comparison with standard curves generated by use of defined inputs of single stranded mature miRNAs.

Supplementary Table S2

Table S2. Expression alterations for mir-34 downregulated genes in Hct116 Dicer^{Ex5} cells ^a

Gene Names	Accession # ^b	Luc si	mir-34a	mir-34b	mir-34c
TK1	NM_003258	1.09	3.65	3.22	3.02
PHF19	AL117477	1.01	3.31	2.40	2.99
MET	AK025784	1.64	3.24	3.16	2.88
LOC149832	BC044234	1.29	3.06	2.61	2.42
MCM3	NM_002388	1.21	3.03	2.86	3.27
FLJ11029	AW183918	-1.14	2.97	2.02	1.99
SH3GL1	NM_003025	1.47	2.97	2.44	2.25
FGFRL1	NM_021923	1.08	2.94	3.04	3.09
CHES1	NM_005197	1.34	2.79	2.58	2.50
PPP1R11	NM_021959	1.10	2.75	2.31	2.29
MGC5508	NM_024092	1.25	2.75	2.91	2.86
CDK4	NM_052984	1.07	2.74	2.39	2.29
C1orf19	NM_052965	-1.01	2.72	2.50	2.57
NUP210	NM_024923	1.01	2.71	1.86	1.75
RAB21	BC009109	-1.03	2.70	1.89	1.57
SLC35A4	NM_080670	1.08	2.70	1.99	1.87
NASP	NM_172164	1.19	2.68	2.56	2.73
ANKRD40	AK054795	1.04	2.68	2.04	2.20
MGC5242	AK056910	-1.11	2.67	2.34	2.33
SGPP1	AI762918	-1.01	2.64	1.87	1.84
LMAN2L	NM_030805	-1.06	2.64	2.54	2.60
ULBP2	NM_025217	1.42	2.62	2.54	3.09
FKSG24	NM_032683	1.04	2.61	2.00	2.00
CNOT6	NM_015455	-1.10	2.59	1.68	1.66
CAP1	NM_006367	-1.00	2.59	1.86	1.63
MGC16207	BC007379	1.18	2.57	2.54	2.47
FLJ11029	NM_018304	-1.22	2.57	1.93	2.02
E2F2	AF086395	1.31	2.57	1.93	2.20
TPD52	NM_005079	1.02	2.56	1.82	1.85
TTC19	NM_017775	1.03	2.56	2.05	2.24
GLRX5	NM_016417	-1.04	2.50	1.98	1.81
MYB	NM_005375	1.32	2.50	1.90	2.17
ATG9A	NM_024085	1.04	2.48	1.81	1.93
VAMP2	NM_014232	1.02	2.45	1.97	2.52
SLC29A1	NM_004955	1.24	2.45	1.71	1.80
FAM64A	NM_019013	-1.11	2.44	1.97	1.96
CDCA5	NM_080668	1.15	2.44	2.12	2.29
CDC25A	AI343459	1.03	2.40	2.04	2.20
FURIN	NM_002569	-1.08	2.39	1.74	1.68
DTL	NM_016448	1.23	2.39	2.82	3.32
TMED8	AK095650	-1.08	2.38	2.63	2.50
SHCBP1	NM_024745	-1.05	2.38	2.72	2.96
TRIB3	NM_021158	1.08	2.37	1.86	1.88
MET	NM_000245	1.29	2.36	2.57	2.27

RKHD2	NM_016626	-1.05	2.36	2.47	2.43
GMNN	NM_015895	-1.08	2.35	2.08	2.09
ARHGAP1	NM_004308	1.71	2.34	1.96	1.99
PKMYT1	NM_004203	1.16	2.31	1.73	1.99
MGC13170	NM_032712	1.15	2.31	1.56	1.65
C6orf89	AJ420511	1.06	2.31	2.53	2.29
TSPAN14	NM_030927	1.10	2.30	1.54	1.37
FLJ13912	NM_022770	1.05	2.25	2.19	2.35
CDK6	AI333092	1.08	2.25	2.36	1.80
MAP3K11	NM_002419	-1.06	2.23	1.78	1.82
CTDSP1	NM_005808	1.21	2.23	2.24	2.74
CDS2	AI972315	1.05	2.22	1.89	1.92
SLC44A2	NM_020428	1.05	2.22	2.08	1.97
TGIF2	NM_021809	1.05	2.22	2.30	2.43
MYOHD1	NM_025109	1.00	2.21	1.61	1.83
CTDSP2	NM_005730	-1.03	2.21	1.66	-2.00
SURF4	NM_033161	1.26	2.19	1.93	1.82
YKT6	NM_006555	1.02	2.19	1.71	1.62
CDC23	NM_004661	1.14	2.19	1.76	1.76
GNPDA1	NM_005471	1.45	2.18	1.71	1.48
NAGPA	NM_016256	1.03	2.17	1.85	2.07
RDH11	NM_016026	1.11	2.14	1.73	1.61
IMPDH1	NM_000883	1.23	2.13	1.77	1.67
SPBC25	NM_020675	-1.12	2.12	2.09	1.94
SPFH1	NM_006459	-1.00	2.11	2.48	2.54
PHGDH	NM_006623	1.21	2.10	2.38	2.17
CHES1	NM_018589	1.13	2.09	2.18	2.22
CCNE2	NM_057749	1.42	2.08	2.08	2.34
XBP1	NM_005080	1.18	2.07	2.04	1.99
RAD54L	NM_003579	1.07	2.06	1.85	2.29
RDX	NM_002906	-1.03	2.05	1.75	1.95
FLJ14154	NM_024845	1.68	2.04	2.01	2.01
SIX5	NM_175875	1.07	2.03	1.82	1.98
FANCA	NM_000135	1.11	2.03	1.70	2.22
KIAA1333	NM_017769	1.13	2.03	1.59	1.66
C8orf55	NM_016647	-1.07	2.03	1.83	1.74
MGC21644	NM_182960	-1.30	2.02	1.75	2.20
TMEM48	NM_018087	-1.06	2.02	1.81	1.74
FANCG	NM_004629	-1.02	2.01	1.61	1.84
CPSF6	NM_007007	1.04	2.01	2.08	2.45
CCNE2	NM_004702	1.26	2.01	2.08	2.39
MCM5	NM_006739	1.09	2.01	1.56	1.69
CTDSP1	NM_021198	-1.00	2.00	1.69	1.86
DKFZp564K142	NM_032121	-1.26	2.00	1.96	2.31
AXL	NM_001699	1.03	1.99	1.61	1.87
KIAA0101	NM_014736	-1.19	1.99	1.59	1.56
STMN1	NM_005563	-1.04	1.98	2.13	2.11
TAF5	NM_139052	-1.07	1.98	2.01	2.11
MBD3	AL390153	1.08	1.97	1.86	1.89
FBXO10	BC013747	-1.24	1.97	1.43	1.69

C7orf21	NM_031434	-1.14	1.95	1.73	1.93
HMMR	NM_012484	-1.22	1.95	2.28	2.44
UBE2L3	NM_003347	1.26	1.95	1.69	1.54
SGPP1	NM_030791	-1.20	1.94	1.68	1.53
MYBL2	NM_002466	1.03	1.94	1.87	2.08
RPAP1	NM_015540	1.20	1.93	1.95	2.03
MGC5242	NM_024033	-1.12	1.93	1.98	2.11
LASS2	NM_022075	1.27	1.92	1.78	1.92
VPS4A	NM_013245	-1.05	1.92	1.92	1.95
ZDHHC16	NM_032327	-1.05	1.92	1.62	1.46
LRRC40	NM_017768	-1.16	1.92	1.82	1.86
C9orf140	NM_178448	-1.01	1.91	1.64	1.61
WDR76	AI220472	1.10	1.91	1.83	2.08
MGC23280	NM_144683	1.08	1.91	1.45	1.52
UNC84B	NM_015374	1.02	1.91	1.69	1.56
VCL	NM_003373	-1.13	1.90	1.61	1.68
SNX15	NM_013306	1.05	1.89	1.73	1.80
ARAF	NM_001654	1.15	1.89	1.58	1.59
C20orf100	NM_032883	1.04	1.89	1.54	1.60
CUEDC1	AI936146	1.23	1.89	1.69	1.90
BRCA1	NM_007300	1.02	1.88	2.31	2.67
SFRS1	AI589112	1.10	1.88	1.53	1.73
TSN	NM_004622	-1.12	1.87	1.88	1.71
CUEDC1	NM_017949	1.18	1.85	1.66	1.78
GAS2L3	NM_174942	-1.01	1.85	1.39	1.41
ZNF358	NM_018083	1.02	1.84	1.66	1.56
HTLF	AA827684	1.20	1.84	2.12	2.01
SCRIB	NM_015356	1.06	1.83	1.63	1.81
DKFZP564O0823	AK025205	1.17	1.83	3.17	3.23
GSG2	NM_031965	-1.12	1.83	2.08	2.27
WDR62	NM_015671	1.04	1.82	1.59	1.95
GOLPH3L	NM_018178	-1.03	1.82	2.18	2.14
PER2	NM_022817	-1.04	1.82	1.28	1.19
FEN1	NM_004111	-1.11	1.81	2.05	2.20
ERO1L	AK024224	1.36	1.81	1.83	1.94
CD151	NM_004357	1.13	1.81	1.65	1.58
C6orf89	AK001957	-1.09	1.81	2.05	2.08
ZNF395	NM_017606	1.00	1.80	2.26	2.02
HMGN4	NM_006353	-1.08	1.80	2.92	2.88
EME1	NM_152463	-1.05	1.79	1.79	2.26
RP13-15M17.2	AI953008	1.08	1.79	1.88	1.80
CIC	NM_015125	1.05	1.79	1.47	1.53
MBD3	NM_003926	1.15	1.78	1.36	1.46
KIAA1704	AB051491	-1.06	1.78	1.30	1.41
AXL	NM_021913	1.00	1.78	1.59	1.75
PSF1	D80008	-1.16	1.78	1.81	1.99
BRRN1	NM_015341	1.04	1.78	1.69	1.84
SLC45A3	NM_033102	1.25	1.77	1.55	1.73
CASKIN2	NM_020753	1.14	1.77	1.55	1.60
CHAF1A	NM_005483	1.13	1.77	1.65	1.96

RASSF5	NM_031437	1.07	1.77	1.83	2.05
F8	NM_019863	-1.13	1.77	1.57	1.42
MGC12538	AA703254	1.39	1.76	1.56	1.24
C9orf125	AJ420439	1.02	1.76	2.10	2.09
RAD51	NM_002875	1.16	1.76	1.58	1.77
HDAC1	NM_004964	-1.07	1.76	1.96	1.96
NFYC	NM_014223	-1.04	1.76	1.73	1.97
HIST1H4E	NM_003545	1.07	1.75	1.66	1.83
PLK1	NM_005030	1.15	1.75	1.61	1.68
PTP4A2	NM_080391	1.23	1.74	2.29	2.60
LOC159090	AL832218	-1.08	1.74	1.86	2.00
TOM1L2	AL133641	1.01	1.74	1.45	1.42
FEM1A	NM_018708	1.00	1.74	1.42	1.26
TESK1	NM_006285	-1.03	1.74	1.67	1.87
UBE2Q1	NM_017582	1.18	1.74	2.24	2.38
ESPL1	NM_012291	-1.03	1.74	1.56	1.61
RRM2	BC028932	1.05	1.74	2.05	2.32
SCMH1	NM_012236	1.10	1.74	1.76	2.04
SFXN5	NM_144579	1.02	1.73	1.76	1.90
MTA2	NM_004739	1.19	1.73	1.56	1.54
SURF5	NM_006752	1.04	1.73	1.47	1.64
SLC16A4	AK091279	1.04	1.73	1.49	1.69
FUT8	NM_004480	-1.03	1.73	1.76	1.75
DTYMK	NM_012145	-1.01	1.72	1.35	1.43
ATP1B3	NM_001679	1.00	1.72	1.77	1.64
SPBC24	NM_182513	-1.09	1.72	1.46	1.68
FLJ37034	BC047423	-1.01	1.72	1.79	1.98
FLJ13868	NM_022744	1.02	1.72	1.48	1.47
BCL2	NM_000633	-1.03	1.72	1.46	1.44
CKLF	AI077541	-1.08	1.72	1.49	1.58
C10orf38	AL050367	1.05	1.71	1.45	1.46
CABLES2	BC003122	-1.16	1.71	1.61	1.69
FLJ39827	NM_152424	1.38	1.71	1.47	1.39
MDM4	NM_002393	-1.16	1.71	1.34	1.44
FAM100B	NM_182565	-1.10	1.71	1.64	1.69
ZDHHC12	NM_032799	1.05	1.71	1.50	1.40
KIAA1160	NM_020701	-1.12	1.71	1.45	1.49
ACSL4	NM_022977	-1.01	1.71	2.06	2.04
ZHX2	NM_014943	1.09	1.71	1.70	1.60
KIF11	NM_004523	-1.04	1.71	1.59	1.69
GTSE1	NM_016426	1.02	1.70	1.63	1.76
DDX10	NM_004398	1.18	1.70	1.49	1.35
NQO1	NM_000903	0.00	1.70	2.93	2.27
ORC1L	NM_004153	1.11	1.70	1.91	2.32
PURB	AK057669	1.08	1.70	1.79	1.80
FLJ14166	NM_024565	-1.10	1.69	1.77	1.90
TBC1D13	NM_018201	1.15	1.69	1.49	1.86
PMF1	NM_007221	1.05	1.69	1.75	1.69
IFRD2	NM_006764	1.02	1.69	1.87	2.01
AFG3L1	NM_001132	-1.19	1.68	1.63	2.19

CEP55	NM_018131	-1.22	1.68	1.48	1.52
MKI67	NM_002417	-1.16	1.68	1.58	1.40
PLAGL2	NM_002657	1.04	1.68	1.50	1.67
VCL	NM_014000	-1.18	1.68	1.48	1.58
ARHGDI1	NM_001175	-1.11	1.68	1.58	1.87
UBE2C	NM_181802	-1.03	1.68	1.43	1.50
KCNS3	NM_002252	-1.08	1.68	1.72	1.59
CCDC15	NM_025004	-1.03	1.67	1.46	1.60
LASS5	NM_147190	-1.03	1.67	1.66	1.63
PALLD	NM_016081	1.02	1.67	1.41	1.28
AREG	NM_001657	1.56	1.67	1.62	1.35
PTTG3	NM_021000	0.00	1.66	1.47	1.51
BIRC5	NM_001168	-1.18	1.66	1.89	1.98
UBE2C	NM_007019	-1.05	1.66	1.42	1.52
ABR	NM_001092	1.25	1.66	1.39	1.56
ZNF580	NM_016202	1.05	1.66	1.60	1.54
PHF17	NM_024900	1.02	1.65	1.48	1.49
NMT1	NM_021079	1.03	1.65	2.44	2.58
PHB	NM_002634	1.08	1.65	1.45	1.44
Pfs2	NM_016095	1.16	1.65	1.53	1.74
NDP52	NM_005831	-1.01	1.65	1.42	1.30
DKFZp762E1312	NM_018410	1.03	1.65	1.51	1.78
C9orf10OS	AK056096	-1.06	1.64	1.45	1.62
DDX11	NM_004399	-1.01	1.64	1.53	2.14
GCH1	NM_000161	1.35	1.64	1.70	1.61
RNF38	NM_022781	-1.08	1.64	1.47	1.32
FSHPRH1	AI190209	-1.01	1.64	1.75	2.07
LOC388730	AI420422	1.14	1.64	1.39	1.37
PARP16	NM_017851	1.10	1.64	2.04	2.20
MAPK9	AI096774	1.03	1.64	1.54	1.53
C14orf94	NM_017815	1.02	1.63	1.41	1.50
MPP2	NM_005374	1.07	1.63	1.73	1.43
FAM49B	AA497060	1.35	1.63	1.83	1.84
HPCAL4	NM_016257	-1.07	1.63	1.96	2.02
WHSC1	NM_133336	1.50	1.63	1.99	2.25
C15orf21	NM_173609	1.07	1.63	1.53	1.53
MFN2	NM_014874	1.03	1.63	1.50	1.29
LOC146517	AL833385	-1.04	1.62	1.45	1.62
ORC6L	NM_014321	1.17	1.62	1.51	1.71
QDPR	NM_000320	-1.00	1.62	1.72	1.70
POLQ	NM_006596	-1.01	1.62	1.46	1.67
KIF15	NM_020242	-1.00	1.62	1.92	2.13
GRPEL2	NM_152407	1.04	1.62	1.89	1.98
FLJ20255	NM_017728	1.13	1.62	1.46	1.61
ZNF395	NM_018660	1.03	1.61	1.81	1.69
HMGB3	NM_005342	-1.03	1.61	1.77	1.88
UBP1	NM_014517	1.06	1.61	2.08	2.20
WHSC1	NM_133330	1.32	1.61	2.10	2.28
TATDN2	NM_014760	1.06	1.61	1.77	1.83
HIRIP3	NM_003609	1.11	1.61	1.39	1.44

ZNF551	NM_138347	1.00	1.60	1.33	1.51
TUBA2	NM_006001	1.04	1.60	1.39	1.31
ATPAF1	AL137294	-1.20	1.60	1.59	1.39
RANBP10	AB040897	-1.02	1.60	1.57	1.75
MAC30	NM_014573	1.06	1.59	1.42	1.44
HIP2	AL117568	-1.05	1.59	2.11	2.06
CAV1	AF074993	1.23	1.59	1.52	1.60
EXOSC2	NM_014285	1.19	1.59	1.51	1.65
ASXL1	NM_015338	1.01	1.59	1.60	1.77
	AI890133	-1.07	1.59	1.48	1.29
KIAA1160	AK024035	1.05	1.59	1.28	1.39
TUBAP	NG_000900	1.08	1.59	1.35	1.36
MED8	NM_052877	1.01	1.59	1.80	1.91
CDK6	AK000660	-1.26	1.58	1.99	1.85
KIFC1	NM_002263	-1.01	1.58	1.56	1.96
RP13-360B22.2	NM_032227	1.02	1.58	1.73	1.80
EXO1	NM_130398	1.07	1.58	1.45	1.65
EFNA5	AW015347	1.11	1.58	1.85	1.83
CCND3	NM_001760	-1.13	1.58	1.68	1.83
MAP2K1	NM_002755	-1.14	1.57	1.96	2.23
FAM76A	AI805069	-1.10	1.57	1.39	1.57
C9orf25	NM_147202	-1.17	1.57	1.48	1.69
	W93501	-1.13	1.56	1.56	1.65
BARD1	NM_000465	1.15	1.56	1.42	1.83
ADRBK2	BC029563	-1.05	1.56	1.59	1.50
CDC25C	NM_001790	1.01	1.56	1.37	1.40
FLJ20232	NM_019008	1.03	1.56	1.88	1.84
	BC037864	1.15	1.56	1.93	1.64
NDRG1	NM_006096	1.29	1.56	2.03	2.03
PSMB7	AJ420421	1.04	1.56	1.34	1.32
D4ST1	NM_130468	1.02	1.56	1.79	1.85
CCNF	NM_001761	1.01	1.56	1.61	1.76
CDKN3	NM_005192	-1.34	1.56	1.40	1.30
PRR3	NM_025263	-1.20	1.55	1.39	1.48
FADS2	NM_004265	1.11	1.55	1.51	1.62
FANCE	NM_021922	1.03	1.55	1.25	1.37
CAV1	NM_001753	1.26	1.55	1.45	1.34
SAMD6	NM_173551	1.05	1.54	1.55	1.59
BID	AK057062	1.03	1.54	1.59	1.62
FIGNL1	NM_022116	-1.04	1.54	1.23	1.28
CENPF	NM_016343	1.00	1.54	1.62	1.65
DKFZp586I1420	NM_152747	1.05	1.54	1.38	1.37
E2F8	NM_024680	1.04	1.54	1.55	1.90
SLC7A1	AL050021	1.16	1.54	1.70	1.51
HCN3	AB040968	1.09	1.54	1.32	2.07
KIF20A	NM_005733	1.03	1.54	1.41	1.50
DGKZ	NM_003646	1.11	1.54	1.52	1.67
DCLRE1B	NM_022836	-1.01	1.54	1.52	1.84
DHCR24	NM_014762	1.16	1.53	1.42	1.52
ETEA	NM_014613	1.23	1.53	1.28	1.28

PHF6	NM_032458	-1.03	1.53	2.25	2.21
CDC45L	NM_003504	1.04	1.53	1.80	2.21
C8orf30A	NM_016458	1.03	1.53	1.74	1.75
HMGB3	BC007608	1.05	1.53	1.92	2.03
RARG	NM_000966	1.02	1.53	1.55	1.47
NUSAP1	NM_016359	1.03	1.53	1.45	1.50
ASF1B	NM_018154	-1.04	1.53	1.60	1.76
MMS19L	NM_022362	1.09	1.53	1.47	1.55
ACSL4	NM_004458	-1.09	1.53	1.95	1.91
TRAF7	NM_032271	1.26	1.53	1.33	1.36
C15orf42	NM_152259	1.08	1.53	1.43	1.62
CDCA8	NM_018101	1.04	1.52	1.62	1.72
UHRF2	NM_152306	1.07	1.52	1.26	1.43
FOXM1	NM_021953	-1.13	1.52	1.38	1.52
C22orf18	NM_024053	1.10	1.52	1.53	1.57
EVI5L	NM_145245	-1.02	1.52	1.70	1.69
AADACL1	NM_020792	1.33	1.52	1.73	1.82
ATP1B3P1	NG_000849	-1.13	1.51	1.62	1.52
TRIOBP	NM_138632	1.24	1.51	1.46	1.52
FUT8	NM_178155	1.00	1.51	1.48	1.53
IQGAP3	NM_178229	1.08	1.51	1.23	1.43
METTL1	NM_005371	1.11	1.51	1.55	1.57
OATL1	L08240	1.06	1.51	1.35	1.30
WSB2	NM_018639	1.33	1.50	1.36	1.32
ETV5	NM_004454	-1.07	1.50	1.67	1.83
C21orf63	NM_058187	-1.19	1.50	1.25	1.28
ENST00000273097	ENST00000273097	-1.01	1.50	1.53	1.45
TBPIP	NM_013290	-1.15	1.50	1.53	1.80
VDR	NM_000376	1.00	1.50	1.50	1.51
FKBP1B	NM_054033	1.24	1.50	1.68	1.64
CSRP1	NM_004078	1.14	1.50	1.65	1.85
RRAS	NM_006270	-1.02	1.50	1.38	1.42
BTRC	NM_032715	-1.04	1.50	1.28	1.37
IRAK1	NM_001569	1.07	1.50	1.53	1.60
MTMR9	NM_015458	-1.04	1.49	1.73	1.79
FBXO5	NM_012177	-1.12	1.49	1.46	1.65
MGAT2	NM_002408	1.11	1.49	1.37	1.42
CHMP7	NM_152272	-1.00	1.49	1.43	1.41
R3HDM1	NM_015361	1.01	1.49	1.44	1.45
FLJ32363	BC036867	-1.14	1.49	1.54	1.70
Ells1	NM_152793	1.17	1.49	1.93	2.05
MGC13024	NM_152288	-1.10	1.49	1.23	1.19
FOXJ2	NM_018416	1.11	1.49	1.29	1.25
PBEF1	NM_005746	1.02	1.48	1.51	1.37
H2AFX	NM_002105	-1.03	1.48	1.53	1.54
TESK2	NM_007170	1.01	1.48	1.51	1.89
OXSR1	NM_005109	-1.06	1.48	1.58	1.50
RAD51C	NM_002876	1.02	1.48	1.34	1.33
RIC8B	NM_018157	-1.13	1.48	1.40	1.48
KLHDC3	NM_057161	-1.11	1.48	1.89	2.25

RBM12	NM_152838	1.12	1.48	1.33	1.24
DGAT1	NM_012079	1.17	1.48	1.39	1.62
STX1A	NM_004603	1.09	1.48	1.18	1.55
GSK3B	AW139538	1.14	1.48	1.65	1.59
MKL1	NM_020831	1.02	1.47	1.41	1.57
LASS2	NM_013384	1.11	1.47	1.57	1.56
MLF1IP	NM_024629	1.03	1.47	1.50	1.65
SCNN1A	NM_001038	-1.05	1.47	1.34	1.27
PRC1	NM_003981	1.04	1.47	1.53	1.64
USP3	AK094444	1.23	1.47	1.94	1.86
FLJ39660	NM_173466	-1.08	1.47	1.61	2.20
PPARG	NM_005037	-1.06	1.47	1.82	1.86
EIF2AK1	NM_014413	1.38	1.47	2.22	2.09
TMEM22	NM_025246	-1.07	1.47	1.53	1.54
HSPC142	NM_014173	-1.03	1.47	1.31	1.30
C10orf26	AK000161	-1.28	1.47	1.53	1.41
C6orf106	NM_022758	1.03	1.47	1.54	1.70
SMPD1	NM_000543	-1.17	1.47	1.34	1.33
RRM1	NM_001033	1.10	1.46	1.31	1.38
MSH6	NM_000179	1.01	1.46	1.49	1.63
PPIG	R38692	1.05	1.46	1.46	1.43
KIF22	NM_007317	1.02	1.46	1.38	1.47
USP15	NM_006313	1.08	1.46	1.58	1.56
LOC400927	AW206718	1.10	1.46	1.37	1.36
PTTG1	NM_004219	-1.06	1.46	1.32	1.40
PPM1A	BM676083	-1.04	1.46	1.70	1.48
ST3GAL5	NM_003896	1.49	1.46	1.68	1.66
CENPJ	NM_018451	1.05	1.46	1.48	1.82
S100A2	NM_005978	-1.02	1.46	1.49	1.39
PPRC1	NM_015062	1.11	1.46	1.27	1.53
LOC441347	AL050136	-1.11	1.46	1.80	1.55
FLOT2	NM_004475	-1.02	1.46	1.74	1.69
CDC7	NM_003503	1.02	1.45	1.48	1.72
KIAA0157	NM_032182	1.01	1.45	1.88	1.96
No annotation	AK024294	1.14	1.45	1.52	1.35
FUT8	NM_178154	1.03	1.45	1.52	1.49
SENP1	BC045639	-1.05	1.45	1.62	1.71
TNFRSF1A	NM_001065	1.06	1.45	1.31	1.36
ARSB	AK026942	-1.04	1.45	1.58	1.61
TTK	NM_003318	-1.08	1.45	1.35	1.41
KIAA0984	AB023201	1.01	1.44	1.93	1.98
RFC4	NM_181573	1.00	1.44	1.59	1.78
CLSPN	NM_022111	-1.10	1.44	1.48	1.52
AOC3	NM_003734	-1.05	1.44	1.22	1.50
PSRC1	NM_032636	-1.10	1.44	1.46	1.65
CREB3L2	AL080209	1.02	1.44	1.94	1.71
No annotation	AI803535	1.04	1.44	1.41	1.39
MAP3K7IP2	NM_145342	-1.13	1.44	1.56	1.52
C18orf24	NM_145060	-1.03	1.44	2.10	2.44
STK39	NM_013233	1.10	1.44	1.17	1.04

KIAA0476	NM_014856	1.02	1.43	1.31	1.60
GRK6	NM_002082	1.06	1.43	1.58	1.41
FARP1	AK025683	1.01	1.43	1.42	1.25
FLJ22794	NM_022074	1.07	1.43	1.49	1.80
MGC18216	NM_152452	1.76	1.43	1.27	1.08
WHSC1	NM_133334	1.05	1.43	1.72	1.92
TROAP	NM_005480	-1.01	1.43	1.40	1.69
PRIM1	NM_000946	1.16	1.43	1.46	1.44
TMEM55A	NM_018710	-1.11	1.43	1.43	1.46
LSS	NM_002340	1.17	1.42	1.31	1.36
PURB	AK056651	-1.16	1.42	1.64	2.26
LOC151162	AF055029	1.27	1.42	2.23	2.24
BLM	NM_000057	1.16	1.42	1.70	1.97
LONRF2	AL157505	-1.17	1.42	1.43	1.36
No annotation	AI927895	1.06	1.42	1.80	1.87
KLC2	NM_022822	1.00	1.42	1.36	1.45
STCH	NM_006948	-1.07	1.42	1.54	1.51
PTTG2	NM_006607	-1.09	1.42	1.33	1.38
GDPD5	NM_030792	-1.11	1.42	1.35	1.47
CRTC2	NM_181715	1.08	1.42	1.33	1.47
DCTN5	NM_032486	1.24	1.42	1.57	1.73
POU2F1	NM_002697	1.04	1.42	1.45	1.33
KIF4A	NM_012310	-1.02	1.42	1.30	1.40
ESAM	NM_138961	-1.12	1.42	1.28	1.43
JPH1	NM_020647	-1.08	1.42	1.49	1.40
OVOS2	NM_173498	-1.08	1.41	1.28	1.37
ATF4	NM_001675	-1.00	1.41	1.38	1.32
CKLF	NM_016951	1.02	1.41	1.37	1.48
NT5E	AA046478	1.09	1.41	1.46	1.65
SLC12A2	AK025062	1.23	1.41	1.59	1.76
hCAP-D3	D29954	-1.12	1.41	1.39	1.38
LMNB1	NM_005573	1.05	1.41	1.57	1.33
ATG5	NM_004849	1.30	1.41	1.98	1.95
SEMA4F	NM_004263	1.03	1.41	1.28	1.29
ZDHHC8	NM_013373	1.10	1.40	1.14	1.52
NXF4	ENST00000289078	1.05	1.40	1.43	1.59
HCAP-G	NM_022346	1.06	1.40	1.96	2.18
PNPLA2	NM_020376	1.14	1.40	1.39	1.46
FAM76A	NM_152660	-1.03	1.40	1.39	1.40
RDH5	NM_002905	1.04	1.40	1.42	1.55
FSBP	NM_006550	-1.06	1.40	1.37	1.55
XPO4	NM_022459	1.05	1.40	1.09	1.16
MTMR10	AL833089	-1.02	1.40	1.67	1.75
C21orf59	AI564020	1.08	1.40	1.50	1.58
C15orf20	AF108138	-1.09	1.40	1.59	2.25
TBPIP	NM_016556	-1.23	1.40	1.48	1.73
L3MBTL3	AB058701	1.01	1.39	1.41	1.30
TUBA3	NM_006009	-1.07	1.39	1.46	1.28
XRCC3	NM_005432	1.13	1.39	1.38	1.63
TFCP2L1	NM_014553	1.26	1.39	1.61	2.15

MCM10	NM_018518	1.21	1.39	1.63	1.96
FLJ38608	NM_153215	-1.03	1.39	1.49	1.42
FLJ13710	AI608673	1.07	1.39	1.26	1.15
GGA2	NM_015044	1.23	1.39	1.27	1.41
FAM62B	AB033054	1.03	1.39	1.49	1.51
FUT1	NM_000148	1.01	1.39	1.24	1.31
DHX33	AA534526	1.01	1.38	1.47	1.52
TRIM6	NM_058166	-1.52	1.38	1.74	1.99
PPP2R3B	NM_013239	-1.07	1.38	1.22	1.82
TNPO1	AL049378	1.33	1.38	1.52	1.61
C6orf153	NM_033112	1.03	1.38	1.33	1.42
C2orf7	NM_032319	-1.05	1.38	1.34	1.61
HNRPR	AK001846	1.11	1.38	1.73	1.76
PRKAA1	AI375852	-1.18	1.38	1.37	1.57
SLC19A1	NM_003056	1.12	1.38	1.35	1.45
C17orf41	NM_024857	-1.16	1.38	1.45	1.65
EZH2	NM_152998	1.12	1.38	1.58	1.83
C10orf119	NM_024834	1.27	1.38	1.78	1.86
AK021744	AK021744	1.18	1.37	1.17	-1.15
DHX37	NM_032656	1.17	1.37	1.30	1.38
MECP2	NM_004992	1.29	1.37	1.74	1.70
LGALS1	NM_002305	-1.01	1.37	0.00	0.00
CCNB2	NM_004701	-1.04	1.37	1.54	1.60
LOC388134	AL355708	-1.01	1.37	1.40	1.09
LYPLAL1	NM_138794	-1.12	1.37	1.40	1.15
SRGAP2	AB007925	-1.10	1.37	1.50	1.44
ARHGEF5	NM_005435	1.11	1.37	1.27	1.36
SHMT1	NM_004169	-1.04	1.36	1.42	1.45
DDR1	NM_001954	1.10	1.36	1.38	1.48
TACC3	NM_006342	-1.00	1.36	1.34	1.50
FLJ27365	AI973033	1.01	1.36	1.30	1.57
ECOP	NM_030796	1.08	1.36	1.35	1.63
PTTG1IP	NM_004339	1.12	1.36	1.42	1.45
RRM2	NM_001034	-1.11	1.36	1.89	1.91
DHX33	NM_020162	-1.06	1.36	1.38	1.47
PSD3	NM_018422	1.04	1.35	1.17	-1.08
COPS7B	NM_022730	1.28	1.35	1.45	1.55
CDCA1	NM_031423	-1.20	1.35	1.51	1.70

^a Each value represents fold reduction for each experimental condition as indicated, as compared to the mock transfection in Hct116 Dicer^{ex5} cells. Negative values in the luc si transfected cells represent fold increase.

^b Refseq accession numbers are provided for all annotated genes. mRNA accession numbers are provided for those unannotated genes included in our array platform.